

A Survey of Fishes Inhabiting the Pearl, Tchefuncte, and Tangipahoa River Systems in Louisiana

Project Summary

Of the 28 fishes included in Louisiana's list of Rare Animals of Conservation Concern, 14 occurred historically in river systems located in the Terrace Upland ecoregion in southeastern Louisiana. In order to document the current distribution and status of these species, we collected habitat and water quality data and determined fish community composition with seines and electrofishing gear at 34 sites (55 total collections) located in the Tangipahoa, Tchefuncte, Pearl, Bogue Chitto, Pushepetapa, and Bogue Lusa river systems in 2007 and 2008. These collections yielded 7,688 fishes representing 74 species, and included 40 individuals (0.5% of the catch) representing four species of concern that were collected at 10 sites over the two years.

A single Gulf sturgeon *Acipenser oxyrinchus desotoi* was observed in the Bogue Chitto River, an important record as it indicates that at least some Gulf sturgeon are able to navigate the sill structure from the Pearl River. Ten southeastern blue suckers *Cycleptus meridionalis* were captured in the Pearl River, but only during 2007 when water levels were low and velocities were minimal. Re-sampling of these sites in 2008 yielded no individuals, but water depths and velocities were significantly greater than in 2007, and the lack of suckers may have been due either to movement of the fish to side-channel habitats, or reduced electrofishing efficiency. However, 2007 collections indicated that depending on flow conditions, southeastern blue suckers can be fairly abundant locally in the lower Pearl River.

We collected four frecklebelly madtoms *Noturus munitus* at a single site in Pushepetapa Creek that was characterized by higher velocities and gravel substrates. Coarse substrates were particularly rare among the 34 sites that were sampled, and this site provided unique habitat conditions that may be closely associated with the distribution of this madtom. Unfortunately, many streams in southeastern Louisiana are being impacted by sediment inputs from road-building and construction activities, which tend to embed and bury larger substrate particles and degrade or eliminate coarse substrate riffles.

The flagfin shiner *Pteronotropis signipinnis* was the most abundant of the four species of concern that we collected, with 25 individuals found in Bogue Lusa Creek and tributaries of the Bogue Chitto River. Flagfin shiners appeared to be relatively common in the upper reaches of these watersheds at sites characterized by moderate velocities and instream vegetation. The abundance of aquatic vegetation is probably associated with moderate levels of nutrient inputs and a fairly open canopy, conditions that are often associated with land uses that remove riparian trees, which may in fact be beneficial for this species.

Considerable variability in fish community composition is evident from our collections, e.g., BSIL2, a headwater tributary of the Bogue Chitto River, exhibited the highest species richness in 2007, and the lowest in 2008. Additional sampling efforts might yield individuals of some of the remaining 10 species of concern in these watersheds, but it appears that Alabama shad *Alosa alabamae*, bluenose shiner *Pteronotropis welaka*, silverjaw minnow *Ericymba buccata*, river redhorse *Moxostoma carinatum*, broadstripe topminnow *Fundulus euryzonus*, crystal darter *Crystallaria* (= *Ammocrypta*) *asprella*, Pearl darter *Percina aurora*, and freckled darter *Percina lenticula* are very rare, if not extirpated members of the fish communities in these watersheds. For several of these species, the western Pearl River tributaries marked the western edge of their distribution, and many were probably not common historically. For others, habitat changes associated with sedimentation from agriculture, road construction, and urban development have degraded preferred habitats in these tributaries and in the Pearl River. Given the demographic trends in this part of Louisiana, it is not likely that these habitats will be restored without considerable effort.